

# America's Energy Future:

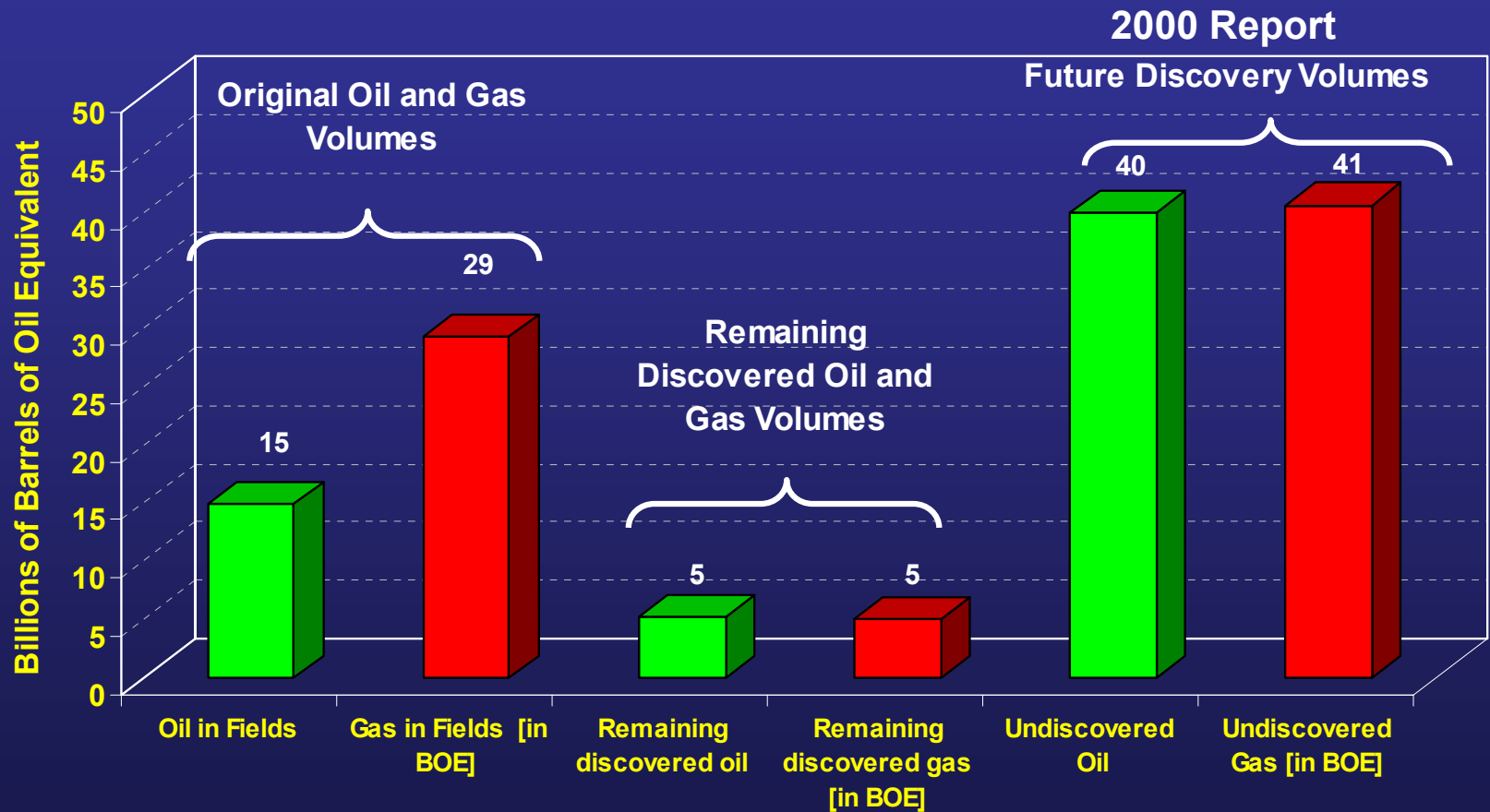
## The Gulf of Mexico Continues as a Prospective Basin

Chris Oynes,  
Minerals Management Service  
October 24, 2003  
GCAGS

- This Year Marks the 50<sup>th</sup> Anniversary of the OCS Lands Act. We have come a long way.
  - From rigs that still touched the shore
  - To beyond the sight of land
  - Now some 200 miles from shore
- Oil production in the Gulf has risen 70% in 8 years.
- Now have gas production from the Canyon Express project in 7,000 ft. of water.
- After 50 years, the Gulf of Mexico remains a vibrant and changing hydrocarbon basin.

# GOM Potential

## GOM Discovered and Future Discovery Volumes

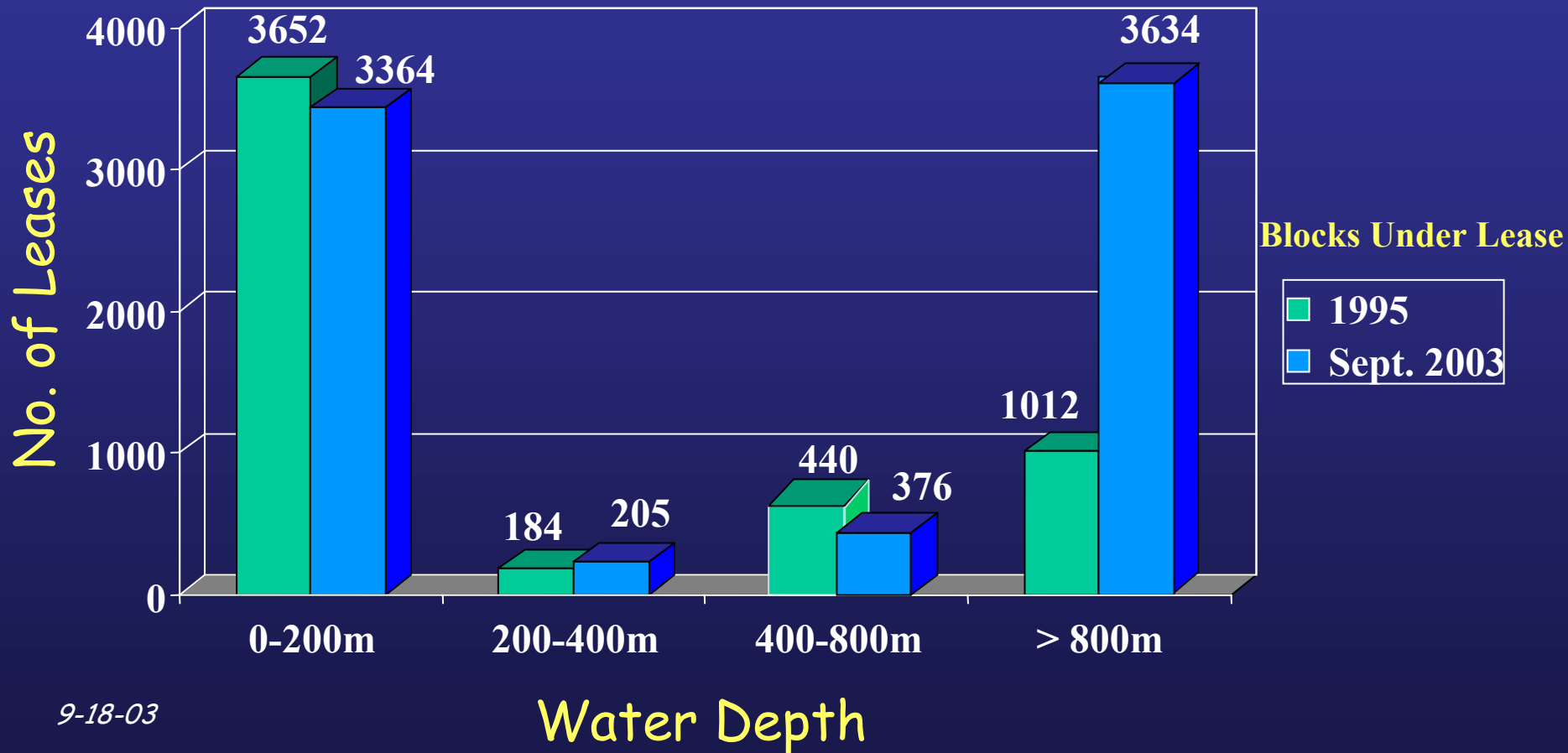


# Topics

- Deepwater developments
- Eastern Gulf of Mexico
- Shallow water gas
- Other energy supply

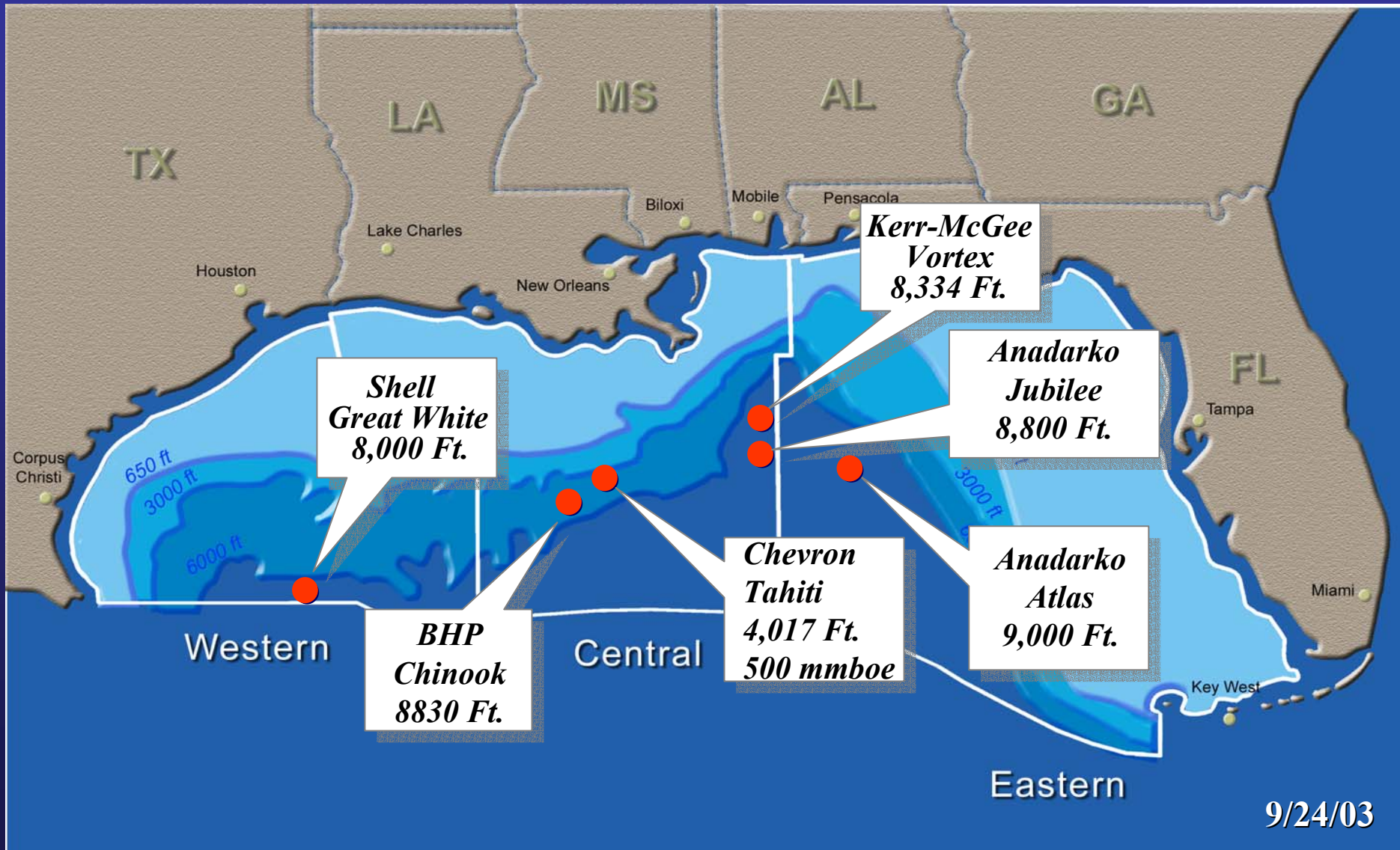
# Expanded Deepwater Leasing in the Gulf

## Number of Leases by Water Depth



9-18-03

# Gulf of Mexico Significant New Discoveries



# Gulf Deepwater Discoveries-2002

Prospect	Operator	Area/Block	Water Depth'
Vortex	BHP Billiton Petroleum (GOM) Inc.	AT261	8,334'
Cascade	BHP Billiton Petroleum (GOM) Inc.	WR206	8,143'
Great White	Shell Offshore, Inc.	AC857	8,009'
Shenzi	BHP Billiton Petroleum (GOM) Inc.	GC654	4,394'
Tahiti	Chevron USA Inc.	GC640	4,017'
West Navajo	Kerr-McGee Oil & Gas Corp.	EB689	3,905'
Slammer	Samedan Oil Corp.	MC849	3,599'
Quatrain	Murphy Exploration & Production	GC382	3,328'
Deimos	Shell Offshore, Inc.	MC806	3,003'
-----	LLOG Exploration Offshore Inc.	GB205	1,330'
-----	Mariner Energy Inc.	MC066	1,144'
-----	Anadarko Petroleum Corp.	MC401	1,134'

# Gulf Deepwater Discoveries-2003

Prospect	Operator	Area/Block	Water Depth'
Atlas	Anadarko	LL 50	9,000'
Chinook	BHP Billiton	WR 469	8,830'
Jubilee	Anadarko	AT 349	8,800'
Constitution	Kerr-McGee	GC 680	5,000'
Champlain	Unocal	AT 63	4,418'
Harrier	Pioneer Nat. Res.	EB 759	4,200'
Hornet	Kerr-McGee	GC 379	3,850'
Perseus	Marathon	VK 830	3,376'
Lorien	ConocoPhillips	GC 199	2,177'
Goose	Spinnaker Expl.	MC 751	1,600'



# Deepwater Development in the Gulf of Mexico

- About 83 projects will be on production by the end of 2003.
- Another 16 projects in 2004.
- Mini-TLP's, Sub sea tie backs, and Spars are the lower cost alternatives.
- Six Spar type projects are in production.

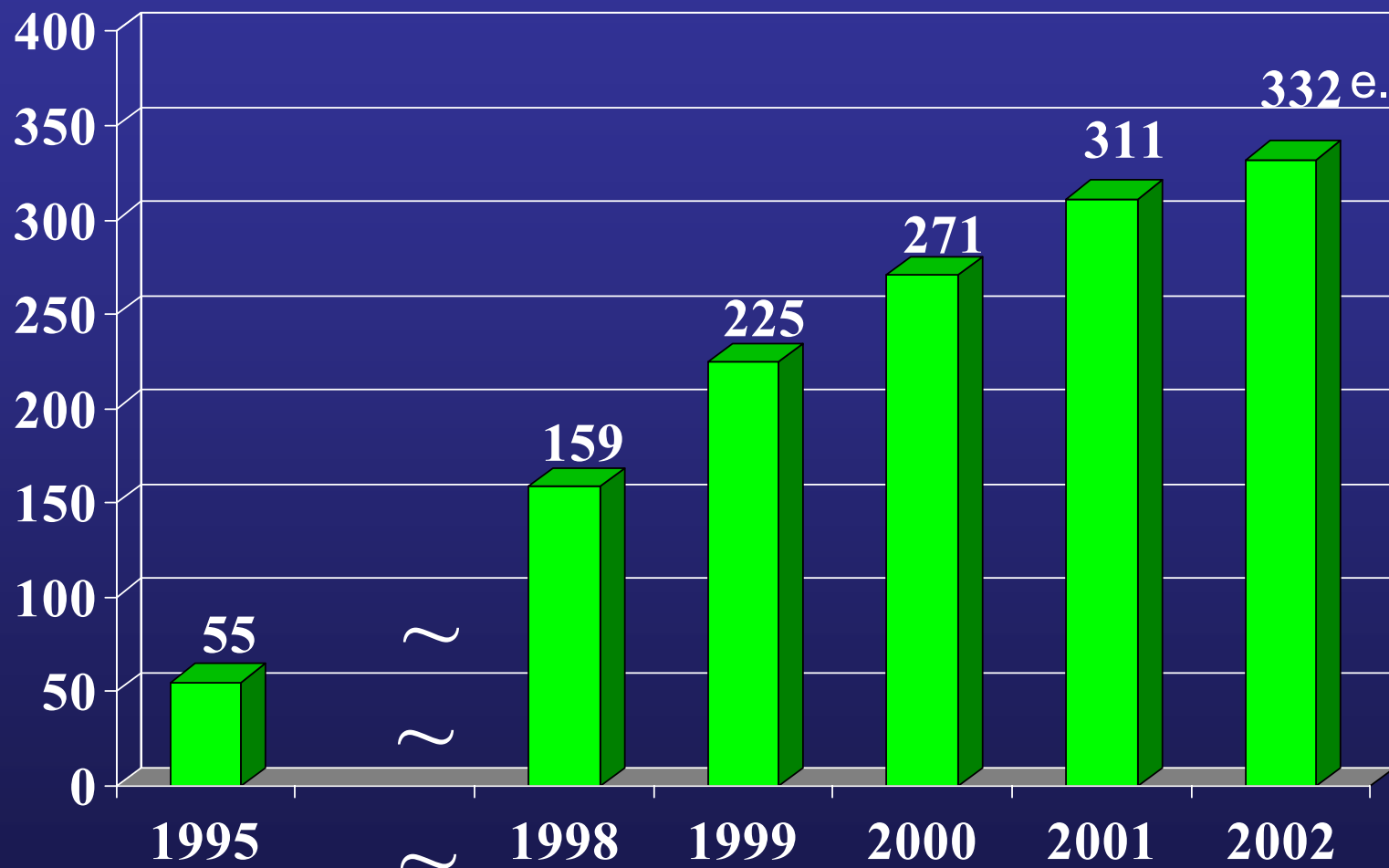
# 2004 Projected Deepwater Production Starts



# 2004 Production Starts Using Spars

Mad Dog	4,951 ft.	Truss
Red Hawk	5,300 ft.	Cell
Gunnison	3,100 ft.	Truss
Front Runner	3,500 ft.	Truss
Holstein	4,300 ft.	Truss
Devil's Tower	5,610 ft.	Truss

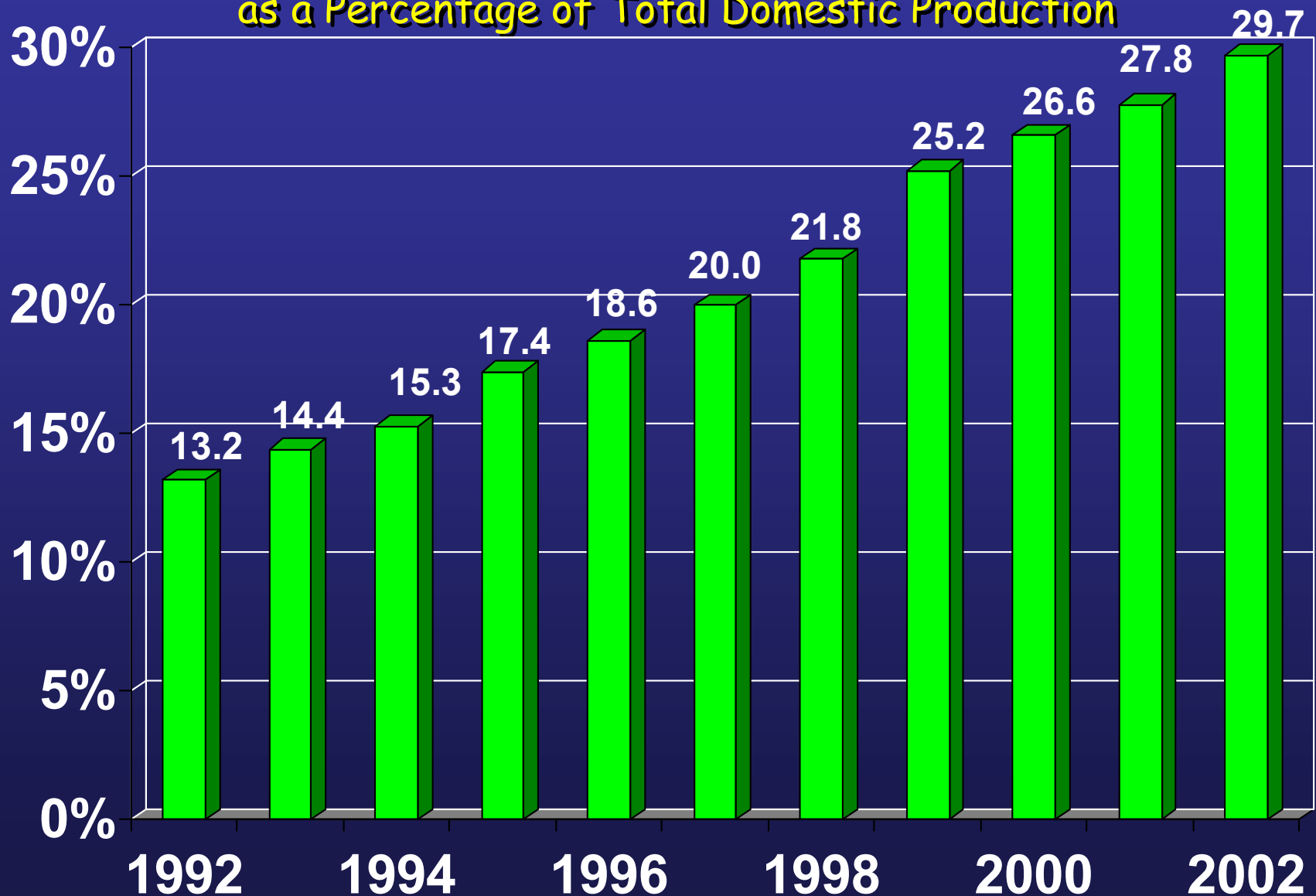
# Gulf of Mexico Deepwater Oil Production



■ Millions of Barrels Per Year

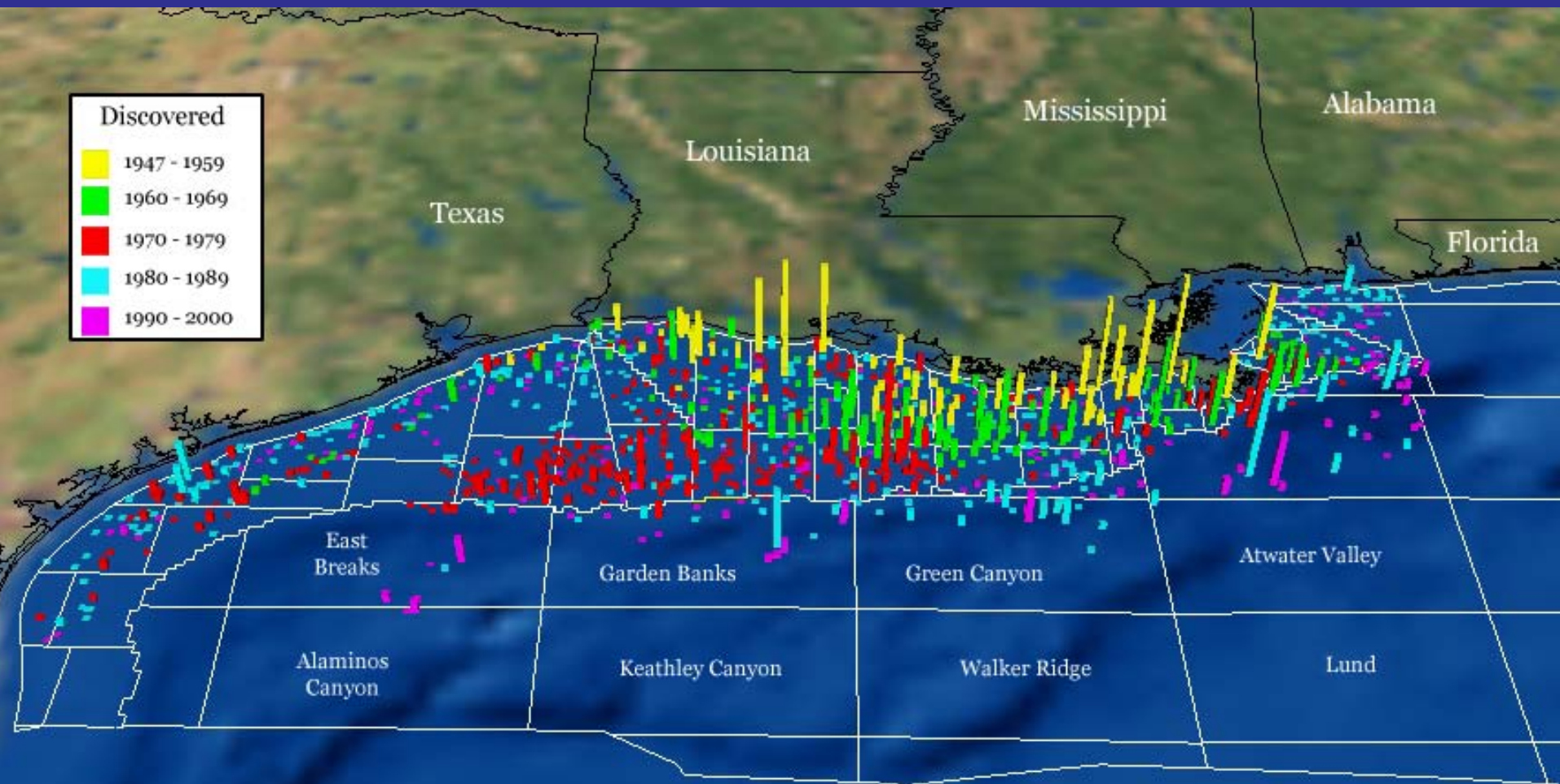
# OCS Oil Production

as a Percentage of Total Domestic Production

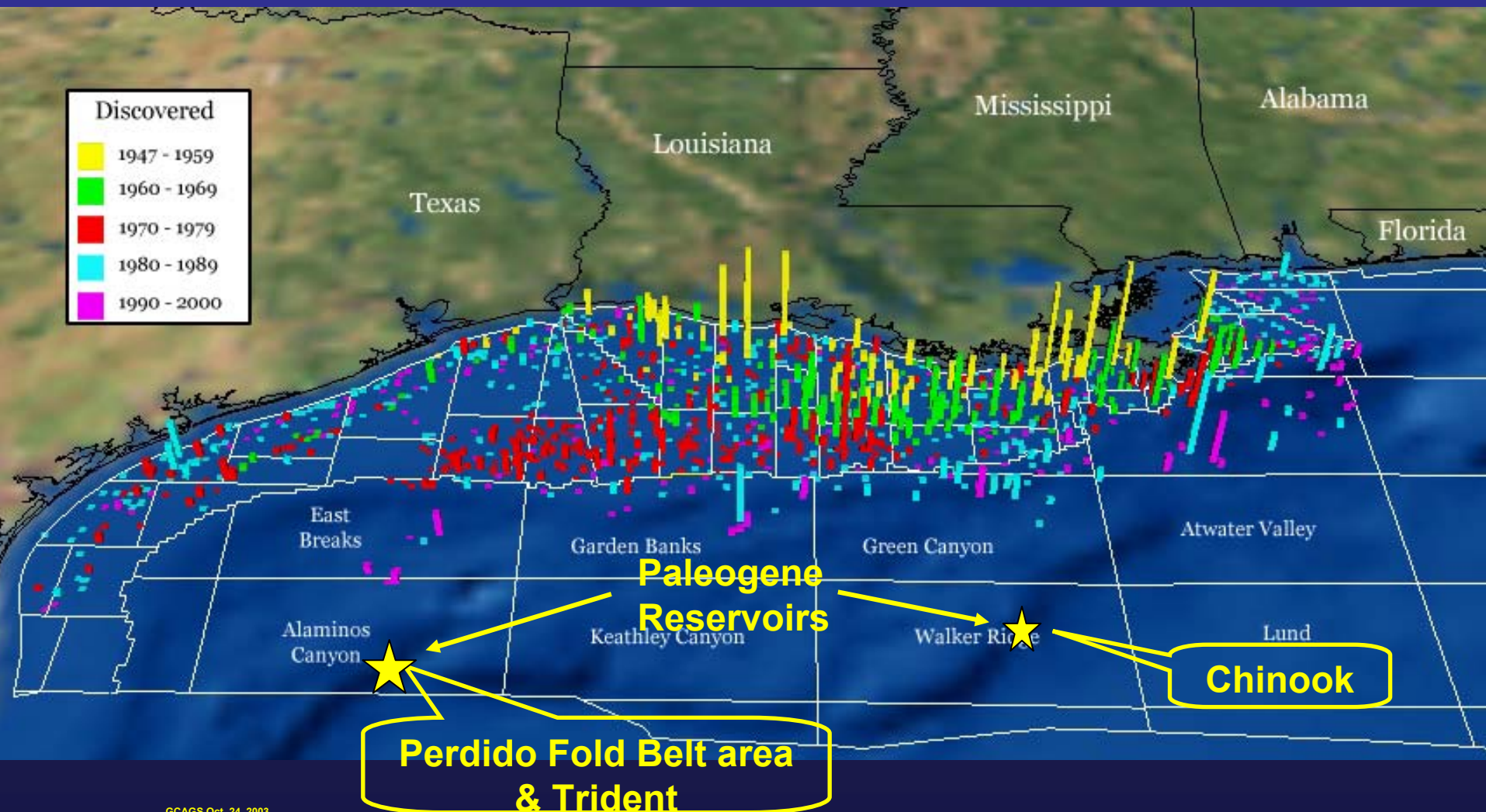




# GOM Oil and Gas Fields



# GOM Oil and Gas Fields and selected new Discoveries



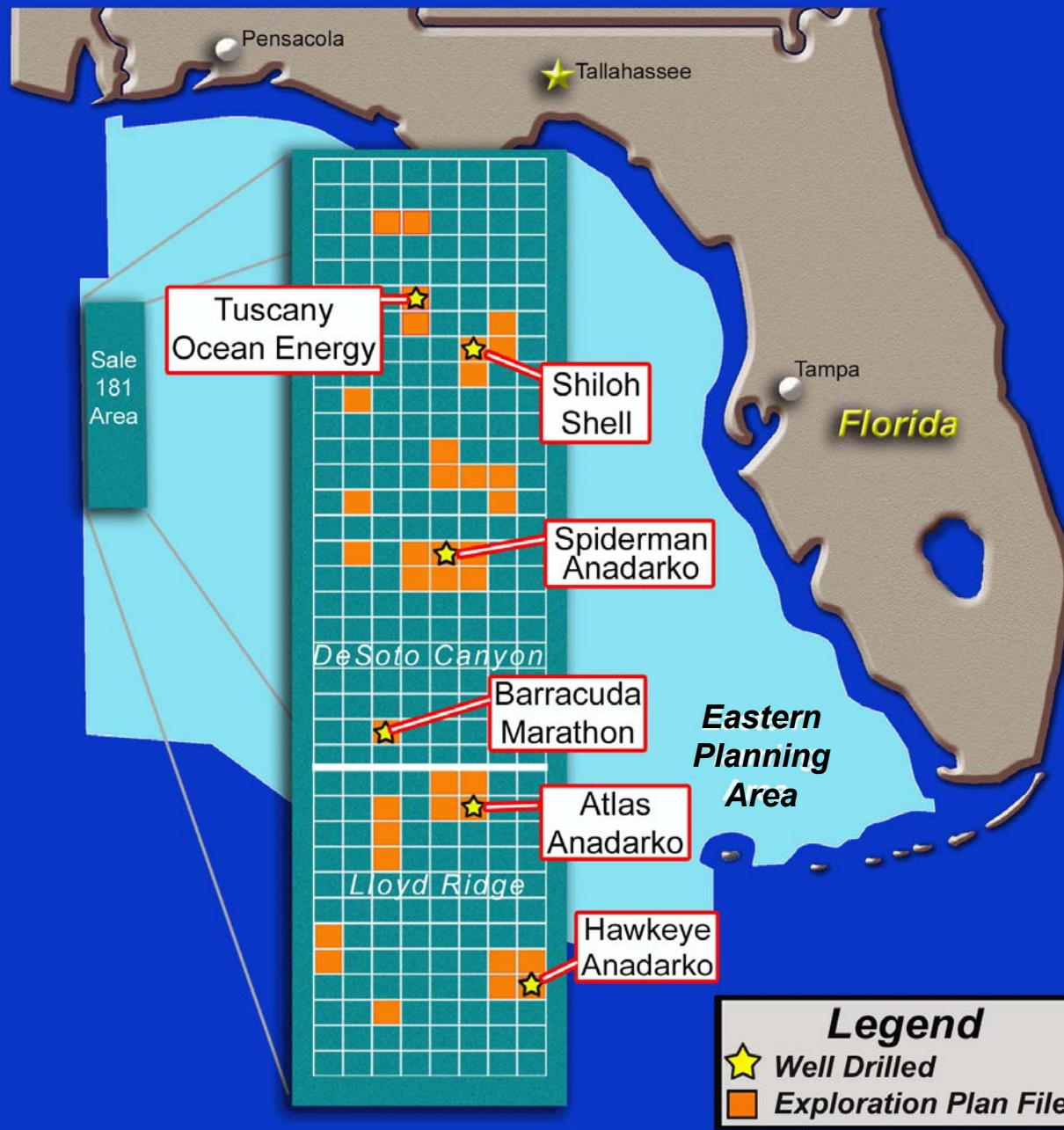


## 2003 Exploration in Eastern Gulf of Mexico





# 2003 Exploration in Eastern Gulf of Mexico



# GOM Shallow Water Gas Production



Shallow water gas production  
is in a steep slide.

Yet 80 percent of Gulf gas comes  
from shallow water.

Policy implications are important.

# A New Play Deep Shelf Gas

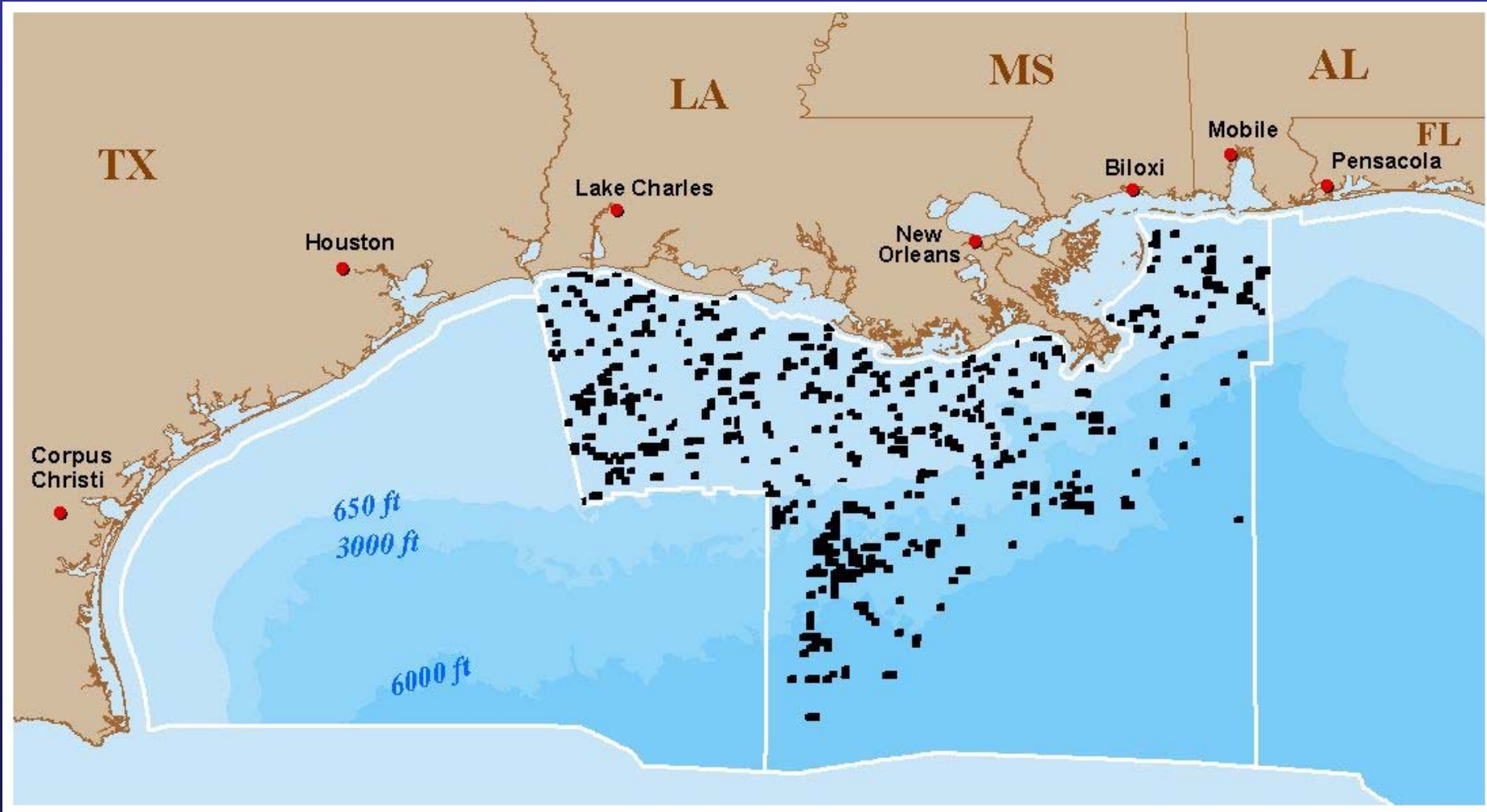
- MMS sees potential in this zone - below 15,000 ft TVD.
- MMS resource estimate is 5 to 20 TCF.
- High flow rate completions are being found.

# Deep Gas on the Shelf - MMS Incentives

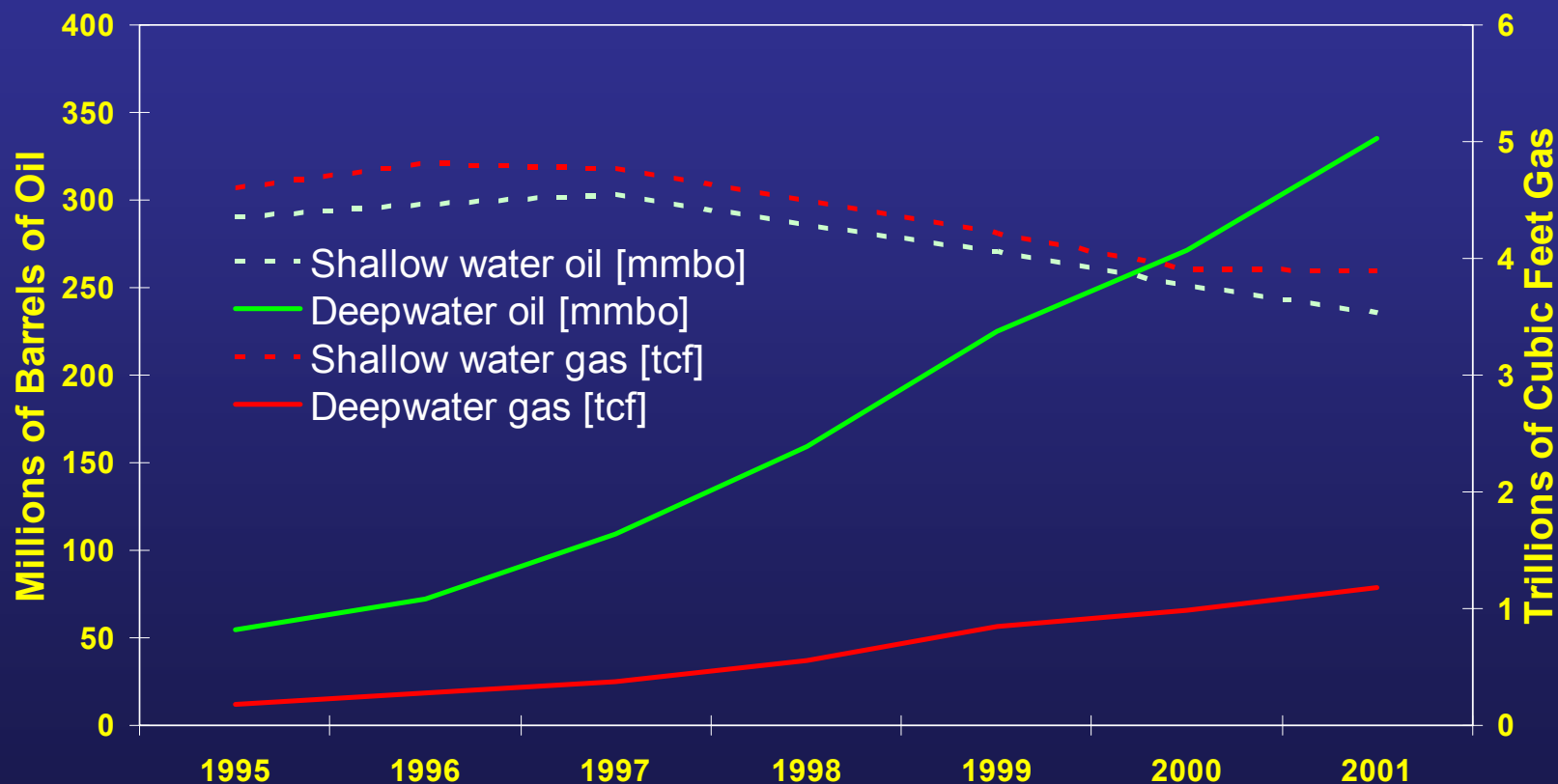
- MMS has offered the first 20 Bcf of gas production royalty free on new leases. Must drill below 15,000 ft.
- Several companies have acquired new shelf leases.
- Majors have come back on the shelf.
- MMS has proposed a rulemaking to apply the royalty relief to existing leases.

# Going After Deep Gas on Shelf

## Bids in Central Gulf Sale 185 March 2003



# Gulf of Mexico Oil and Gas Production



# New Exploration Potential in the Gulf By Geologic Age

System	Subsystem	Series	Reserves	Exploration Potential
Tertiary	Neogene	Pleistocene	99% GOM proved reserves	➤ Large Discoveries in Mississippi Fan Fold Belt.
		Pliocene		➤ Large Subsalt Discoveries - Fold Belts & Turtles.
		Miocene		➤ Projection of Deep-Water Plays updip into shallower waters. Deep drilling required.
	Paleogene	Oligocene Eocene Paleocene	➔	➤ New announced discoveries in the Deep-Water, Opening a large Play area for these reservoirs.
Cretaceous			1% GOM proved reserves	➤ Mesozoic potential extends into the Eastern GoM Sale Areas.
Jurassic				



# Other Energy Supply from OCS Projects



# Summary

- Over 50 years of activity in the GOM has resulted in over 1,000 oil and gas fields
- Active leases occur over most of the Western and Central GOM, but production is just beginning to move into water depths beyond a few thousand feet.
- Despite the widespread areal extent of leasing, there are parts of the GOM that are very lightly explored
  - Deep gas
  - Paleogene Reservoirs
  - Mesozoic Reservoirs